

CLAIMS 1, 11 and 13

1. (Previously Presented) A multilayer interconnection substrate comprising:

an uppermost interconnection layer having a plurality of terminal pads formed at positions corresponding to a plurality of external connection terminals provided on a semiconductor element which is to be mounted on said multilayer interconnection substrate;

a metal column formed on each of said terminal pads by metal-plating, and having a top surface;

a resin film covering a side surface of said metal column, and having a top surface; and

an insulating layer formed on said uppermost interconnection layer of the same material as the resin film so that a gap is formed between the insulating layer and an outer peripheral surface of said resin film, wherein an upper end surface of each metal column is at the same height as an upper surface of the insulating layer,

the top surface of the metal column and the top surface of the resin film covering the side surface of the metal column are formed at the same level of height; and

the top surface of the metal column is surrounded by and exposed on the resin film so that the top surface of the resin film metal column forms a pad for connection with a semiconductor element.

2-10. (Cancelled)

11. (Amended) A semiconductor device comprising:

a multilayer interconnection substrate which comprises an uppermost interconnection layer having a plurality of terminal pads formed at positions corresponding to a plurality of external connection terminals provided on a semiconductor element which is to be mounted on said multilayer interconnection substrate; a metal column formed by metal-plating on each of

said terminal pads and having a top surface; a resin film covering a side surface of said metal column and having a top surface; and an insulating layer formed on said uppermost interconnection layer of the same material as the resin film so that a gap is formed between the insulating layer and an outer peripheral surface of said resin film, wherein an upper end surface of each metal column is at the same height as an upper surface of the insulating layer,

the top surface of the metal column and the top surface of the resin film covering the side surface of the metal column are formed at the same level of height; and

the top surface of the metal column is surrounded by and exposed on the resin film metal column so that the top surface of the resin film metal column forms a pad for connection with a semi-conductor element.

12. (Cancelled)

13. (Previously Presented) A semiconductor device comprising:

a multilayer interconnection substrate manufactured by forming a plurality of terminal pads in an uppermost interconnection layer; forming an insulating layer on said uppermost interconnection layer; forming openings in said insulating layer, the openings located at positions corresponding to said terminal pads; filling each of said openings with metal particles; forming a metal column in each of said openings by heating said metal particles at a temperature which melts said metal particles so as to define a metal column top surface; and removing a part of said insulating layer near but not adjacent to a peripheral side of said metal column, while leaving a part of said insulating layer adjacent to said peripheral side of said metal column, so that a gap is formed around but not adjacent to said peripheral side of said metal column, wherein the top surface of each metal column is at the same height as an upper surface of the insulating layer.

14. (Cancelled)